

Acc. Nr: AP0048368

Abstracting Service: I

Ref. Code:

INTERNAT. AEROSPACE ABST. 5-70

UR0293

9

A70-24315 # Study of the geosactive particles and photo-electrons by means of satellite 'Kosmos-261.' IV—Study of charged particles with a middle and high energy (Issledovanie geosaktivnykh korpuskul i fotoelektronov na sputnike 'Kosmos-261.' IV—Izmereniia zariashchennykh chastits srednikh i vysokikh energii). A. D. Goliuzova, A. D. Verevkin, Ju. I. Gal'perin, L. S. Gorn, L. S. Zhurav, I. D. Ivanov, R. N. Isaeva, I. P. Karpinski, R. A. Kovalevskii, V. V. Temnyi, B. I. Khazanov, A. V. Shifrin, and F. K. Shulskii. *Kosmicheskie Issledovaniia*, vol. 8, Jan.-Feb. 1970, p. 126-135. 7 refs. In Russian.

Descriptions of the scintillation spectrometers for measuring the electrons with energy ranging from 20 to 150 keV and more, protons with energy ranging from 0.30 to 9 MeV. A lead-screened Geiger counter for measuring the protons with energy above 50 MeV and rigid electrons is also described. The latitude-dependent intensity distribution of the intrusive electrons is determined together with the pitch distribution of the electron intensity in the aurora zone, and differential electron spectra.

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REEL/FRAME  
19800076

Acc. Nr.: AF0042568

Ref. Code: UR0293

JPRS 50162

Measurement of Low-Energy Electrons

(Abstract: "Measurement of Low-Energy Electrons," by Yu. I. Gal'perin, N. V. Dzhordzhio, I. D. Ivanov, I. P. Karpinskiy, E. L. Lein, T. M. Mulyarchik, B. V. Polenov, V. V. Temnyy, N. I. Fedorova, B. I. Khazanov, A. V. Shifrin and F. K. Shuyskaya; Moscow, Kosmicheskiye Issledovaniya, Vol VIII, No 1, 1970, pp 108-119)

[Note: This is part of a sectionalized article "Study of Geoactive Coruscles and Photoelectrons on the Satellite 'Kosmos-261'," Kosmicheskiye Issledovaniya, Vol VIII, No 1, 1970, pp 104-136]

A spectrometer for low-energy electrons, operating in the energy range 30 eV-15 keV, is described. Electrons undergo energy selection in a cylindrical capacitor and then are accelerated to 17 keV and are registered by a scintillation counter with two photomultipliers operating in a coincidence circuit. The instrument field of view is circular, the aperture angle is  $+3.5^\circ$ , the geometry factor is  $2 \cdot 10^{-3} \text{ cm}^2 \cdot \text{sterad}$  and the energy resolution is  $\Delta E/E = 0.19$ . In the first range (30-150 eV) energy scanning is done smoothly by applying a sawtooth voltage; in the second analysis it is done smoothly at three fixed energies -- 1, 4.5 and 15 keV. The instrument can be switched from one regime to another by command from

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the earth. The paper gives the first results of measurements on the "Kosmos-261" satellite. The instruments measured the equilibrium energy spectrum of fresh photoelectrons at different latitudes for different pitch angles. Soft auroral electrons with energies from 30 eV to approximately 1 keV were registered both in the "second" zone of auroras and in the main zone of auroras in which electrons with energies 4.5 and 15 keV were also very intensive even during magnetically quiet times. On many revolutions of the satellite about the earth, passing approximately along the auroral oval, with transition from the midnight to the morning sectors there is a structureless "background" of electrons with an almost constant intensity and slowly changing angular distribution. The energy flux of these electrons is approximately 1 erg/cm<sup>2</sup>·sec. Near the midnight sector and with transition from the midnight to evening sector the fluxes of auroral electrons are far more irregular, with strong peaks, particularly at about 4.5 keV. No measureable electron intensities were discovered in the middle and low latitudes in the keV range. The upper limit of the energy flux in the quiet atmosphere is approximately  $<1.5 \cdot 10^{-2}$  erg/cm<sup>2</sup>·sec. An exception is the equatorial region of the ionospheric anomaly, where as earlier (on the "Kosmos-5" satellite) there was sporadic registry of soft electrons.

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I. D. IVANOV

Acc. Nr.: AP0042567

Ref. Code: UR 0293

JPRS 5762

Measurements of Intermediate- and High-Energy Particles

(Abstract: "Measurements of Charged Particles of Intermediate and High Energies," by A. D. Bolyunova, A. D. Morevkin, Yu. I. Gal'perin, L. S. Gorn, L. S. Zhurina, I. D. Ivanov, R. N. Isayeva, I. P. Karpinskiy, B. A. Kovrazhkin, V. V. Temnyy, B. I. Khazanov, A. V. Shifrin and F. K. Sharykayev, Moscow, Kosmicheskiye Issledovaniya, Vol VIII, No 1, 1970, pp 120-126; [Note: This is part of a sectionalized article "Study of Geosynchronous Particles and Photoelectrons on the Satellite 'Kosmos-261'," Kosmicheskiye Issledovaniya, Vol VIII, No 1, 1970, pp 104-136])

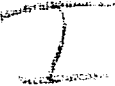
This article describes the RIE-205 scintillation spectrometer for electrons of intermediate energies, the RIP-802 scintillation spectrometer for protons and the RIG-111 lead-shielded Geiger counter. The RIE-205 instrument measured electrons in the ranges 20-45, 45-85, 85-120 and 120-150 keV and the total intensity of electrons with an energy greater than 150 keV (geometry factor  $2 \cdot 10^{-3} \text{ cm}^2 \cdot \text{sterad}$ ). The RIP-802 instrument measured protons in the ranges 0.30-0.45, 0.45-0.70, 0.70-0.95 and 0.95-9 MeV with a geometry factor of  $1.5 \cdot 10^{-2} \cdot \text{sterad}$ . The RIG-111 instrument measured

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1970/05/15

AP0042567

protons with  $E > 50$  MeV and hard electrons. In the radiation belts and auroral zones the instruments measured the fluxes and energy spectra of electrons and protons, their distribution by pitch angles and spatial-temporal characteristics. It was possible to determine the latitude variation of the intensity of injected electrons, the pitch distribution of intensity for auroral zone electrons and the differential electron spectra. For example, the electron fluxes measured with the RHE-205 spectrometer can be assigned to the following groups: a) trapped electrons in the inner zone ( $L \leq 2.5$ ) were registered for the most part in the region near the Brazilian anomaly; their flux for an energy  $E > 150$  keV attained  $10^8$  particles/cm<sup>2</sup>·sec. and was highly dependent on pitch angle; a pronounced maximum was observed for pitch angles  $90^\circ$ ; b) trapped electrons in the outer zone  $2.5 \leq L \leq 7$ , also with a maximum intensity for pitch angles of  $90^\circ$ ; in many cases quasitrapped particles were registered in the region of invariant coordinates  $h_{min} \leq 100$  km with intensities up to  $2 \cdot 10^6$  particles/cm<sup>2</sup>·sec·sterad; c) sporadic hard electrons injected into the atmosphere in the middle latitudes; in these cases the mean energy was usually  $\sim 100$  keV and the particle flux attained  $10^5$  particles/cm<sup>2</sup>·sec; d) electrons of intermediate and high energies injected into the atmosphere in the high latitudes; they are frequently observed near the auroral zone.

19760546

1/2 024 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--INTEGRATION AND EVOLUTION OF BIOENERGETIC PROCESSES -U-  
AUTHOR--~~MANDV~~, I.D.   
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, SER. BIOL. 1970, (1), 5-13  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--BIOENERGETICS, ELECTRON DONOR, CELL PHYSIOLOGY, ENZYME  
ACTIVITY  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1996/0438 STEP NO--UR/0216/70/000/001/0005/0013  
CIRC ACCESSION NO--AP0117674  
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0117674

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BIOENERGETIC INTEGRATION MECHANISM BY THE ELECTRON TRANSFER CHAIN WITH TERMINAL H SEPN., WAS REVIEWED AND A GENERAL FORMULA SUGGESTED. THE CONCLUSIONS WERE THAT BIOENERGETIC INTEGRATION OCCURS AT THE VARIOUS STAGES OF THE ELECTRON TRANSFER CHAIN. THE LOWER POTENTIAL INTEGRATION IS AFFECTED BY THE PHOSPHOROELASTIC REACTION AT THE CYTOCHROME LEVEL, THROUGH THE PHOSPHATE ACCEPTOR CONTROL AND REVERSE ELECTRON TRANSFER. IN BOTH CASES THE HYDROGENASE REACTION IS THE BASIS OF THE MECHANISM. FACILITY: INST. MIKROBIOL., MOSCOW, USSR.

UNCLASSIFIED

USSR

013: 001.386.01.001.8

IVANOV, I. G. and RUBININ, V. S.

"Distortion of Antenna Near Fields by a Probe of Finite Dimensions During Measurement of the Amplitude-Phase Distribution"

Tr. Leningr. in-ta tekhn. zh. i optiki (Transactions of the Leningrad Institute of Precision Mechanics and Optics) 1978, No. 69, pp 28-30 (from Rad. Mashtobaknika, No. 3, March 71, Abstract No. 3E102)

Translation: The directional diagram of a half-wave vibrator in the near zone in the presence and absence of a perturbing body (a sphere of diameter  $0.1 \lambda$ ) moving along the vibrator axis is computed. Two illustrations, bibliography of nine. V. S.

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IVANOV, I. I.

EVOLUTIONARY ASPECTS OF TITANIUM CHLORIDES IN A MEDIUM OF MELTED SODIUM AND POTASSIUM CHLORIDES

ENG 609,294

Article by R. A. Gulyaev, E. I. Yakubovskiy, and I. I. Ivanov, Leningrad Metals Institute, Department of Metallurgy of Light and Rare Metals; Ordzhonikidze, Leningrad Vuz. Leningrad Metallurgy, Russian, No 6, 1971, signed to press 6 February 1971, pp 60-64

Evolution of the reaction  $2TiCl_3 + Ti \rightarrow 3TiCl_2$  in a medium of chlorides of alkali and alkali-earth metals has been studied by many investigators using both thermal [1-7] and electrochemical methods [8, 9]. The data from different investigators often do not agree. This concerns mainly the influence on equilibrium of those very important parameters such as temperature and total concentration in the titanium melt.

The basic research on investigating equilibrium has been done on the basis of low-concentration titanium-containing melts relative to the conditions of electrolytic production and refining of titanium. The data in these investigations, which are in accord, indicate that with transition from melts on a base of NaCl to melts on a base of KCl the equilibrium is shifted to the left and values of chlorides of alkali-earth metals to melts of alkali metals shift the equilibrium to the left. The investigations of equilibrium in high-concentration melts [1] did not permit determining any definite relationships.

At the present time, of greatest practical significance is the use of high-concentration melts in the two-stage sodium-thermal method for production of high-quality metallic titanium [10], and in the metal-thermal refining of titanium [11] and other alloys. The most widely used technologically acceptable salt medium in carrying out such a process is NaCl or KCl, as well as the spent electrolyte \*

\*The composition of the spent electrolyte in weight percent is: 76-78 KCl, 12-14 NaCl, 6-8 MgCl<sub>2</sub>, 1-2 CaCl<sub>2</sub>.

JPRS 55710  
4 May 72

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IVANOV, I. I.

EQUILIBRIUM RATIO OF LOWER TITANIUM CHLORIDES IN A MEDIUM OF MIXED SODIUM AND POTASSIUM CHLORIDES

UDC 669.295

[Article by R. A. Sushkov, E. I. Yekelovskaya, and I. I. Ivanov, Leningrad Mining Institute, Department of Metallurgy of Light and Rare Metals; Oreshnikovskaya, Ispetsiya VUZ, Ispetsiya Metallurgiya, Russian, No 6, 1971, signed to press 6 February 1971, pp 60-64]

Equilibrium of the reaction  $2TiCl_3 + TiCl_4 \rightleftharpoons 3TiCl_2$  in a medium of chlorides of alkali and alkali-earth metals has been studied by many investigators using both thermal [1-7] and electrochemical methods [8, 9]. The data from different investigators often do not agree. This concerns mainly the influence on equilibrium of those very important parameters such as temperature and total concentration in the titanium melt.

The basic research on investigating equilibrium has been done on the basis of low-concentration titanium-containing melts relative to the conditions of electrolytic production and refining of titanium. The data in these investigations, which are in accord, indicate that with transition from melts on a base of  $HgCl_2$  to melts on a base of  $CaCl_2$  the equilibrium is shifted to the left; additives of chlorides of alkali-earth metals to melts of alkali metals shift the equilibrium to the left. The investigations of equilibrium in high-concentration melts [1] did not permit determining any definite relationships.

At the present time, of greatest practical significance is the use of high-concentration melts in the two-stage sodium-thermal method for production of high-quality metallic titanium [10], and in the metal-thermal refining of titanium [11] and other wastes. The most widely used technologically acceptable salt medium in carrying out such processes is  $HgCl_2$  or  $KCl$ , as well as the spent electrolyte  $\alpha$

The composition of the spent electrolyte in weight percent is: 76-79  $KCl$ , 12-14  $HgCl_2$ , 6-8  $HgCl_2$ , 1-2  $CaCl_2$ .

1/2 012 UNCLASSIFIED PROCESSING DATE--3000170  
TITLE--ALPHA DECAY OF PRIME211 RN AND PRIME212 RN -U-

AUTHOR--(05)--AFANASYEV, V.P., BOCHVAROVA, M., GOLOVKOV, N.A., GROMOVA,  
~~I.I.~~ ~~IVANOV, I.I.~~  
COUNTRY OF INFO--USSR

SOURCE--LAB. OF NUCLEAR PROBLEMS. 1970. 11P. DEP. CFSTI

DATE PUBLISHED-----70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, PHYSICS

TOPIC TAGS--ALPHA DECAY, SPECTROGRAPH, RADON ISOTOPE, POLONIUM ISOTOPE,  
RADIOACTIVE DECAY, ASTATINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3002/0174

STEP NO--UR/0000/70/000/000/0011/0011

CIRC ACCESSION NO--AT0127798

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--30OCT70  
CIRC ACCESSION NO--AT0127798  
ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE ALPHA DECAY OF PRIME211 RN AND PRIME212 RN WAS INVESTIGATED USING THE MAGNETIC SPECTROGRAPH. BESIDES THE KNOWN ALPHA TRANSITIONS OF PRIME211 RN (5850 KEV (1), 5783 KEV (1.84), 5616 KEV (0.08)) THERE WERE OBSERVED THE NEW ONES: 5466 KEV (2 TIMES 10 PRIME NEGATIVE4), 5276 KEV (4.4 TIMES 10 PRIME NEGATIVE4, 5179 KEV (6 TIMES 10 PRIME NEGATIVE5) 5055 KEV (2 TIMES 10 PRIME NEGATIVE5). THE HINDRANCE FACTORS ARE PRESENTED. NEW LEVELS: 391.4 KEV, 585 KEV, 684 KEV ARE INTRODUCED FOR THE PRIME207 PO NUCLEUS. FOR PRIME212 RN THE 5588 KEV (5 TIMES 10 PRIME NEGATIVE4) ALPHA TRANSITION TO THE 687 KEV LEVEL OF PRIME208 PO, WAS OBSERVED. THE PARTS OF ALPHA DECAY OF PRIME211 AT, PRIME211 RN AND PRIME207 PO (41.3 PLUS OR MINUS 1.3PERCENT AND 0.028 PLUS OR MINUS 0.003PERCENT) ARE ESTIMATED. FACILITY: JOINT INST. FOR NUCLEAR RESEARCH, DUBNA USSR.

### Article Contents

1334

NEWMAN, E. B., WILSON, W. W., STEINBERG, W. J., and HARRIS, R. W.: 1973, 'The  
 1972-73 Season', *Journal of the Royal Society of New Zealand* 3, 1-10.

"Study of the Dynamics of the Deformation of Polymers and of the Elastic Damping" of Vibrations in Single Crystals of the Polymer.

Sverdlovsk, *Zhurnal Metallov i Metallovedeniya*, Vol. 50, No. 1, 1987, pp. 1-11.

Abstract: The Fe-34 Si alloy was used in a study of the nucleation and growth of oscillations and investigation of the dynamics of the domain structure during twisting, allowing a number of regularities to be determined which are in line with ideas of the domain mechanism of magnetoelastic coupling. In this case the following twisting of single crystal specimens of Fe-34 Si, the following processes occur: displacement of the  $180^\circ$  boundaries of the principal domains, fractionation of the initial domain structure as a result of the appearance of a pair of domains with a the principal domains, and also complete division into a pair of domains with a the principal domains, and also complete division into a pair of domains with a the principal domains of the  $180^\circ$  boundaries of the principal domains. Comparatively slight displacements of the boundaries of drop domains in the domains, as well as displacements of the boundaries of drop domains in the domains, twisting of a specimen with  $\phi = 0^\circ$  caused no forces in magnetoelastic oscillations. In magnetoelastic oscillation in specimens with  $\phi = 55$  and  $90^\circ$  could have been

USSR

KOKALOV, I. M., et al, Fizika Metallov i Metallovedeniye, Vol 37, No 3, 1978, pp 566-573

related to intensive displacement of the  $180^\circ$  boundaries of the principal domains or the effect of fractionation of the domain structure, which obviously takes place in restructuring of the internal domain structure with participation of the  $180^\circ$  boundaries. Restructuring of the principal domain structure in specimens with  $\phi = 55^\circ$  occurred with deformations considerably exceeding the deformation for which magnetoelastic attenuation reaches its maximum.

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Radiobiology

USSR

UDC 612.015.348.015.36.014.482.4

~~IVANOV, I. I.~~, and RUDAKOV, V. V., Military Medical Academy imeni S. M. Kirov and Institute of Experimental Medicine, Academy of Medical Sciences USSR, Leningrad

"Interpretation of Experimental Data on the Effects of Ionizing Radiation on Systems Synthesizing Proteins (Synthesis of Milk Proteins in Lactating Mammary Glands)"

Moscow, Doklady Akademii Nauk SSSR, Vol 201, No 3, 1971, pp 731-732

Abstract: Results obtained in experiments in which isolated lactating mammary glands of goats were irradiated in vitro and intact lactating glands of rats were irradiated in vivo indicate that normal synthesis of milk proteins (nutrient proteins, enzymes, and antibodies) continues for 2-5 hours after irradiation with 5,000 r but rapidly declines and ceases 3-7 days later. It is suggested that this delayed effect is due to damage done to segments of matrix DNA. Thus, protein synthesis is maintained by messenger and transfer RNAs present in the secretory cells, but ceases after these ribonucleic acids are used up. This mechanism also explains all other delayed manifestations of radiation sickness.

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1/2 019 UNCLASSIFIED PROCESSING DATE--11-15-1970  
TITLE--THE FRACTIONAL COMPOSITION OF PROTEINS OF THE CARDIAC AND SKELETAL  
MUSCLES IN EXTRACORPOREAL CIRCULATION -U-  
AUTHOR-(02)-IVANOV, I.I., SAFONOV, YE.S.

COUNTRY OF INFO--USSR

SOURCE--BYULLETIN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 40,  
NR 3, PP 53-55  
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROTEIN, HEART MUSCLE, MUSCULOSKELETAL SYSTEM, ARTIFICIAL  
BLOOD CIRCULATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1442/0848

STEP NO--007021327/0007 1442/0848

CIRC ACCESSION NO--1442/0848



2/2 018

UNCLASSIFIED

PROCESSED AT 01:14:57

CIRC ACCESSION NO--A9087242

ABSTRACT/EXTRACT--(U) OP-0- ABSTRACT. UNDER STATIONARY CONDITIONS, THE COMPOSITION OF PROTEINS OF THE CARDIAC AND SKELETAL MUSCLE IS INFLUENCED BY REGIONAL PERFUSION IN ADEQUATE CONDITIONS. IT IS DEMONSTRATED THAT REGIONAL PERFUSION DOES NOT CAUSE CHANGES OF PROTEIN FRACTIONS (SARCOPLASMATIC PROTEINS, MYOFIBRILLARIC PROTEINS, STROMAL PROTEINS) OF THE MUSCLES STUDIED, WHEREAS AS EXTRACORPOREAL CIRCULATION IS ASSOCIATED WITH A CERTAIN RISE IN THE CARDIAC MUSCLE OF THE FRACTION OF THE SARCOPLASMATIC PROTEINS AND A REDUCTION OF THE FRACTION OF EASILY SOLUBLE MYOFIBRILLARIC PROTEINS (T FRACTION).

UNCLASSIFIED

AP9052914

UR 0289

PRIMARY SOURCE: Izvestiya Sibirskogo Otdeleniya, AN SSSR,  
Seriya Khimicheskikh Nauk, Nr 12(162), Nr 5,  
pp 146-148

Z. A. Na'kina,  
L. M. Gindin, I. M. Ivanov.

THE EXTRACTION OF AMMINES COBALT

The extraction of five cobalt (III) ammines:  $(\text{Co}(\text{NH}_3)_6)\text{Cl}_3$ ,  $(\text{Co}(\text{NH}_3)_5\text{H}_2\text{O})\text{Cl}_2$ ,  $(\text{Co}(\text{NH}_3)_5\text{Cl})\text{Cl}_2$ ,  $(\text{Co}(\text{NH}_3)_5\text{NO}_2)\text{Cl}_2$ ,  $(\text{Co}(\text{NH}_3)_4\text{Co}_2)\text{Cl}$  has been investigated depending on the pH of medium. The studied complexes are extracted by caprylic acid better than ammonium ion. The extraction curves fall into groups according to the charge of the complexes.

1949 1613

USSR

ROYTBURD, L. N., IVANOV, I. N., BOBYLEV, V. G. and VOROB'YEVA, L. F.,  
Moscow Institute of Engineering and Economics imeni S. Ordzhonikidze

"Technical and Economic Indicators of Plasma Arc Remelting"

Dnepropetrovsk, Metallurgicheskaya i Gornorudnaya Promyshlennost', No  
6, Nov-Dec 73, pp 62-64

Abstract: This article presents the results of studies of the technical and economic indicators of plasma arc remelting. The studies were performed at the Moscow Institute of Engineering and Economics on the basis of plant report data. The studies showed that the present level of these indicators does not correspond to the actual capabilities of the process. Where production facilities are fully mastered and normal operation of the equipment is achieved, the level of utilization of calendar time reaches 89.5%. The normal level of cost of the process is 108.8 rubles per ton, the specific capital investment required per unit of capacity is 220 rubles per ton. The indicators show that plasma arc remelting is equal in these respects to vacuum arc and cathode ready remelting.

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Foundry

USSR

UDC 669.187.046

ROYTBURD, L. N., IVANOV, I. N., KARPOV, A. G., and GERGAUZ, G. V., Moscow Engineering-Economics Institute

"Important Reserve for Increasing the Economic Effectiveness of Electroslag Smelting"

Moscow, Izvestiya VUZ, Chernaya Metallurgiya, No 11, 1973, pp 186-188

Abstract: By now the high national economic effectiveness of one of the new procedures for improving the quality of alloyed steels and alloys, that is, the process of electroslag smelting, can be considered proven. However there is still room in the metallurgical enterprises for improving the effectiveness of this process and its technico-economic indicators.

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USSR

ROYTBURD, L. N., et al., Izvestiya VUZ, Chernaya Metallurgiya, No 11, 1973, pp 186-188

The authors discuss some of the ways in which this can be done with respect to cost of using various alloys and fluxes.

They have compiled a table which illustrates the calculations of the cost of one ton of liquid flux employed in the process.

The article contains 1 table.

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USSR

UDC 669.15-194.003.1

ROYTBURD, L. N., IVANOV, I. N., and BERGAUZ, G. V.

"The Usefulness of Electroslag Remelting in the National Economy"

Dnepropetrovsk, Metallurgicheskaya i Gornorudnaya Promyshlennost', No 4(82)  
Jul-Aug 73, pp 66-68

**Abstract:** Results are presented of an investigation of the economic impact of the introduction of the electroslag remelting (ESR) process. The economic effect is seen as the algebraic sum of expenditures for the production and utilization of the metal. The use of electroslag metal in the production of responsible bearings reduces waste in metal processing and prolongs the life of bearings by a factor of 2-3 and results in an economy of up to 5319 rubles/ton. The economy resulting from introducing EI961 heat-resistant steel in the production of compressor disks is 1849 rubles/ton. The introduction of 40KhMMA steel for the production of longerons produces savings of 6200 rubles/ton, while the introduction of 1Kh17N2 stainless steel for production of turbine blades results in savings of 13,250 rubles/ton.

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USSR.

UDC 621.317.7.087.92-952

DMITRIYEV, V. I., IVANOV, I. N., TIMOFEYEV, G. A.

"Convertors of Pulse Repetition Frequency to Direct Current"

USSR Author's Certificate No 293296, Filed 23/04/66, Published 18/03/71,  
(Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, 1971, Abstract No 11 A188 P).

Translation: This invention can be used in measuring systems and automatic regulation systems containing sensors with a frequency output signal. A device is known which converts a frequency to a direct current, containing a dosing condensor connected to the switch of a circuit which limits the charge and with charging and discharging circuits of the condensor, one of which includes an integrating condensor and a parallel load resistor connected to it. The purpose of the invention is to increase the accuracy and speed of this device, eliminate the dependence of the output current on load resistance, increase the maximum power transmitted to the load, and produce an output signal consisting of a direct current voltage, regardless of the load impedance. This purpose is achieved by connecting a threshold element to the integrating condensor, connecting one input of a phase-sensing element to the output of the threshold device, connecting the second input to the output of the entire device, and connecting the output of the phase-sensing element through a

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UDC 621.317.7.087.92-932

DMITRIYEV, V. I., IVANOV, I. N., TIMOFEYEV, G. A., USSR Author's Certificate  
No 293296, Filed 23/04/66, Published 18/03/71.

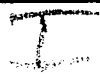
resistor to the integrating condensor. In order to produce a linear functional characteristic, an amplitude comparater is used as the threshold element, the second input of which is connected to the output of the phase-sensing element through a feedback circuit. 1 Figure.

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USSR

 Circuit Theory

UDC 621.384.6

IVANOV, I.N., IOVNOVICH, M.L., KAKHAN'KOV, V.G., PARBL'SHTSYN, B.L.

Tr. Vses. Soveshchaniya po uskoritel'nyam zaryazhen. chasti, 1968. T. 2 (Works Of The All-Union Conference On Charged Particle Accelerators, 1968. Vol 2), Moscow, VINITI, 1970, pp 503-506 (from RZh--Elektronika i yeye primeneniye, No 10, October 1970, Abstract No 10A422)

Translation: The basic problems connected with the stability of an electron-ion ring in an internal magnetic field are considered. The method of investigation of similar systems consists in a combined study of kinetic equations for functions of the distribution of electrons and ions, and systems of Maxwell equations for the electromagnetic field. The results are presented of similar investigations, both in linear and nonlinear approximations. 9 ref. G.B.

1/1

USSR

UDC: 621.372.6.077.45

IVANOV, I. T.

"Field and Radiation Resistance of a Spiral Antenna"

Tr. Leningrad. in-ta tekhnichesk. i fiziki (Transactions of the Leningrad Institute of Precision Mechanics and Optics) 1976, No. 69, pp 11-16 (from Radiotekhnika, No. 3, March /1. Abstract No. 3576)

Translation: Formulas are obtained for the field components, the directional diagram, the radiation resistance, the directivity and width of the direction pattern of a spiral antenna in axial radiation. The computational and experimental functions of the radiation resistance for such an antenna in the wavelength range of 20 to 40 cm are given. Two illustrations, two tables, bibliography of 3. 7. 1.

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USSR

UIC: 621.596.677

IVANOV, I. F., ANDRIYEV, V. A., and LABANOV, Yu. P.

"Dispersion Field of a Plane Wave in the Near Zone from a Small Sphere"

Tr. Leningr. in-ta tekhnov mekh. i optiki (Transactions of the Leningrad Institute of Precision Mechanics and Optics) 1970, No. 69, pp 34-37 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 355)

Translation: A determination is made of the secondary (diffracted) field in the incidence of a plane electromagnetic wave on a sphere of given radius and with given parameters. The secondary field in the near zone is computed. The optimal radius of the sphere from the point of view of the permissible distortions of the primary field is determined. (An illustration, bibliography of five.

1/1

USSR

UDC 621.317.7

TUDOROVSKIY, A. A., IVANOV, I. T.

"An Ionospheric Radio Wave Direction Finding Method"

Tr. Leningr. in-ta tochnoy mekh. i optiki (Works of the Leningrad Institute of Precision Mechanics and Optics), 1970, vyp. 69, pp 3-11 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A235)

Translation: A method of constructing a two-channel radio direction finder free of polarization errors is discussed. The antenna comprises three crossed loops, two of which are mutually perpendicular, stationary and oriented with respect to the points of the compass, and the third is horizontal and coupled electrically to the search coil of a goniometer. A table and formulas are presented for calculating the azimuth in the direction of the radio source. There are 3 illustrations, 1 table and a 1-entry bibliography.

1/1

1/2 025 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--ULTRA WIDE BAND ANTENNA -U-  
AUTHOR--IVANOV, I.T. I  
COUNTRY OF INFO--USSR  
SOURCE--KIEV, IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY, RADIOELEKTRONIKA,  
VOL 13, NO 1, JAN 70, PP 74-76  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.  
TOPIC TAGS--WIDEBAND COMMUNICATION, DIPOLE ANTENNA  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1991/1019 STEP NO--UR/0452/70/013/001/0074/0076  
CIRC ACCESSION NO--AT0110715  
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AT0110715

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. A SMALL DIMENSIONAL ULTRA WIDE BAND 3 DIPOLE ANTENNA IS DESCRIBED. THE GEOMETRY OF THE ANTENNA CALL VALUES ARE ADJUSTED BY DIVIDING BY  $\lambda_{SUBMAX}$  IS: 1 SUB1 APPROXIMATELY EQUAL TO 0.25, 1 SUB2 EQUALS 0.22, 1 SUB3 EQUALS 0.2; H EQUALS 0.22, H EQUALS 0.056; D EQUALS 0.33, S EQUALS 0.0114; 2 P SUB1 EQUALS 0.0125; 2 P SUB2 EQUALS 0.005; A EQUALS 0.011, B EQUALS 0.04. THE DIPOLES OF DIFFERENT LENGTH ARE TUNED TO THE LONG MIDDLE AND SHORT WAVE REGIONS OF THE SERVICE BAND. IN ORDER TO DECREASE THEIR LENGTH, THE DIPOLES ARE MADE IN THE FORM OF DELAYING STRUCTURES OF COAXIAL SPIRALS. TO INCREASE THE ANTENNAS' BANDWIDTH, THE SPIRAL STRIPS AT THE ENDS OF THE DIPOLES ARE ELECTRICALLY SHORTED BY A THIN STRIP. BECAUSE OF THIS STRUCTURE, THE LINEAR DIMENSIONS OF THE DIPOLES ARE ABSTRACT: DECREASED ALMOST TWICE AS COMPARED WITH KNOWN HALF WAVE DIPOLE ANTENNAS, DUE TO THE REDUCTION OF THE LENGTH OF THE WAVES IN THE DELAY COAXIAL SPIRAL STRUCTURE. AFTER A SERIES OF EXPERIMENTS, OPTIMUM MATCHING CHARACTERISTICS FOR THE ANTENNA WERE FOUND WITH A 1:25 COEFFICIENT OF OVERLAP AND A TRAVELLING WAVE RATIO IS SMALLER THAN 0.3.

UNCLASSIFIED

Antennas

USSR

UDC 621.396.67

IVANOV, I. T.

"Ultra Wide-Band Antenna"

Kiev, Izvestiya vysshikh uchebnykh zavedeniy, Radioelektronika,  
Vol 13, No 1, Jan 70, pp 74-76

Abstract: A small-dimensional ultra wide-band 3-dipole antenna is described. The geometry of the antenna (all values are adjusted by dividing by  $\lambda_{\max}$ ) is:  $l_1 \approx 0.25$ ,  $l_2 = 0.22$ ,  $l_3 = 0.2$ ;  $h = 0.22$ ,  $H = 0.056$ ;  $d = 0.33$ ,  $s = 0.0114$ ;  $2\rho_1 = 0.0125$ ;  $2\rho_2 = 0.005$ ;  $a = 0.011$ ,  $b = 0.04$ . The dipoles of different length are tuned to the long- middle- and short-wave regions of the service band. In order to decrease their length, the dipoles are made in the form of delaying structures of coaxial spirals. To increase the antennas' bandwidth, the spiral strips at the ends of the dipoles are electrically shorted by a thin strip. Because of this structure, the linear dimensions of the dipoles are  $1/2$

USSR

IVANOV, I. T., Izvestiya vysshikh uchebnykh zavedeniy. Radio-  
elektronika, Vol 13, No 1, Jan 70, pp 74-76

Abstract: decreased almost twice as compared with known half-wave dipole antennas, due to the reduction of the length of the waves in the delay coaxial spiral structure. After a series of experiments, optimum matching characteristics for the antenna were found with a 1:25 coefficient of overlap and a travelling-wave ratio  $\leq 0.3$ . 3 fig. 1 ref. Submitted 30 July 68; re-submitted after revision, 23 June 1969.

2/2



USSR

UDC 621.219.4

VERBITSKAYA, T. N., IVANOV, I. V., MOROZOV, N. A.

"Dielectric and Nonlinear Properties of the VK-2 and VK-7 Varicaps in the Microwave Band"

Elektron. tekhnika. Nauch.-tekhn. sb. Radiodetali (Electronic Technology. Scientific and Technical Collection. Radio Parts), 1971, vyp. 1(22), pp 29-39 (from RZh-Radiotekhnika, No 11, Nov 71, Abstract No 11V493)

Translation: An investigation is made of the dielectric properties of VK-2 and VK-7 varicaps on frequencies of 1, 500 and 1000 MHz over a wide temperature range. The coefficients of static and dynamic nonlinearity of the ferroelectric ceramic are determined in the phase transition region. It is shown that in a wide temperature range encompassing the ferroelectric phase transition point, the relation between the microwave permittivity and the biasing electric field is described by the formula  $\epsilon(E, T) = \epsilon(0, T) \cdot [a + k(T)|E_0|]^{-1}$ , where  $a = a_0(E, T) \approx 1$ ;  $k(T)$  is proportional to  $\epsilon^2(T)$ . A new phenomenon is observed: in weak pulse fields, an anomalously high dynamic nonlinearity arises briefly in the ferroelectric phase. The nonlinear properties of ceramic and single crystals are compared. Resumé.

1/1

USSR

IVANOV, K.

"A 70-Gram Refrigerator"

Moscow, Sotsialisticheskaya Industriya, 29 Jan 71, p 4

Translation: After a severe injury, a fatal complication has arisen: an edema of the brain. The only salvation is to slow down the biophysical processes taking place in the injured part by drastically cooling it.

Formerly, they used ice packs for this purpose. This method of inducing hypothermia had many shortcomings; it was not very effective, it was impossible to regulate and control the temperature, and especially, it was impossible to cool one particular part of the brain.

The Institute of Semiconductors of the USSR Academy of Sciences has created a thermoelectric cooling device to induce local hypothermia in the brain.

The miniature thermoelectric cooler, weighing only 70 grams, is equipped with a set of replaceable working terminals that make it possible to select a

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USSR

IVANOV, K. Sotsialisticheskaya Industriya, 29 Jan 71, p 4

plate of suitable shape and size for each part of the brain.

Two 1.5 meter-long flexible hoses provide the thermoelectric cooling device with current and water cooling the hot layers of the thermoelement.

The temperature of the working terminal can vary evenly between  $+5^{\circ}\text{C}$  and  $+38^{\circ}\text{C}$ . It takes 2-3 min to produce the desired temperature.

Using the miniature cooler it is possible to cool the entire brain also. Reducing the temperature to  $+20^{\circ}\text{C}$  reduces the brain's oxygen consumption by 40%; this is a very important factor in reanimating patients with severe brain injury and after neurosurgery.

The physicians have been given another means of combating death.

2/2

- 62 -

Acc. Nr:

AP0048371

Abstracting Service:

INTERNAT. AEROSPACE ABST 5-70 2180293

Ref. Code:

A70-24320 = Magnetic effect of the interaction between the magnetosphere and the filamentary inhomogeneity of the solar wind (Magnitnyi effekt vzaimodeistviia magnitosfery s voloknistoi neodnorodnost'iu solnechnogo vetra). N. V. Mikerina and K. G. Ivanov. *Kosmicheskie Issledovaniia*, vol. 8, Jan.-Feb. 1970, p. 149-151. 17 refs. In Russian.

Investigation of magnetic disturbances caused by the interaction between the magnetosphere and the incident filamentary solar-wind inhomogeneity observed by Pioneer 6 on Jan. 20, 1966. It is assumed that the inhomogeneity consists of a region of relatively cold and dense plasma separated by two tangential discontinuities from the hotter and more rarefied solar-wind plasma. It is shown that the direct interaction between the inhomogeneity and the magnetosphere is accompanied by the first phase (onset to maximum) of a bay disturbance; the recovery phase observed after the passage of the inhomogeneity can be regarded as a transient process of system relaxation to an undisturbed state.

T.M.

REEL/FRAME  
19800079

1/2 017 UNCLASSIFIED PROCESSING DATE--02OCT70  
TITLE--MAGNETIC FIELD OF THE NEUTRAL LAYER IN THE TAIL OF THE  
MAGNETOSPHERE, MAGNETIC FIELD OF NEUTRAL LAYER IN TAIL OF MAGNETOSPHERE  
AUTHOR--IVANOV, K.G.  
COUNTRY OF INFO--USSR  
SOURCE--MOSCOW, GEOMAGNETIZM I AERONOMIYA, VOL XM NO 2, 1970, PP 333-334  
DATE PUBLISHED-----70  
SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, PHYSICS  
TOPIC TAGS--MAGNETOSPHERE, MAGNETIC FIELD, MAGNETIC PRESSURE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1990/1660 STEP NO--UR/0203/70/010/002/0333/0334  
CIRC ACCESSION NO--AP0109655  
UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0109655

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHOR COMPARES THE THEORETICAL AND EXPERIMENTAL RESULTS OF STUDY OF DISTRIBUTION OF THE MAGNETIC FIELD IN THE NEUTRAL LAYER OF THE TAIL OF THE MAGNETOSPHERE. THE MAGNETIC FIELD IN THE NEUTRAL LAYER  $H$  CAN DECREASE WITH APPROACH TO THE EARTH BECAUSE THE VOLUME OF THE MAGNETIC TUBES MOVING TOWARD THE EARTH CAN DECREASE AND THIS CAN CAUSE AN INCREASE IN GAS PRESSURE AND A DECREASE IN MAGNETIC PRESSURE IN THE TUBES. THE FIELD DECREASE CAN BE COMPUTED USING THE FORMULA (SHOWN ON MICROFISH) WHERE  $H_{SUBR}$  AND  $H$  ARE THE MAGNETIC FIELDS IN THE TAIL OF THE MAGNETOSPHERE AND WITHIN THE NEUTRAL LAYER RESPECTIVELY;  $H_{SUB0}$  IS THE MAGNETIC FIELD IN THE TAIL AT A DISTANCE OF  $35 R_{SUBE}$ ;  $R$  IS THE HALF WIDTH OF THE NEUTRAL LAYER;  $\Delta L$  IS THE HALF LENGTH OF THE TUBE OF FORCE;  $\Phi$  IS A FACTOR TAKING INTO ACCOUNT THE NONUNIFORMITY OF  $H_{SUBR}$ ;  $P_0$  IS INITIAL PLASMA PRESSURE IN THE TUBE. FOR MAGNETICALLY QUIET CONDITIONS ( $K_{SUBP}$  SMALLER THAN OR EQUAL TO 2) AND FOR THE MORNING SECTOR OF THE MAGNETOSPHERE THE FIELD DECREASE WITH APPROACH TO THE EARTH IS SHOWN BY A CURVE CITED IN THE ARTICLE. THIS CURVE, ANALYZED IN SOME DETAIL, CONFIRMS THE THEORY THAT THERE IS SOME DECREASE IN THE MAGNETIC FIELD OF THE NEUTRAL LAYER WITH APPROACH TO THE EARTH.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--INTERPLANETARY MAGNETIC FIELD FLUX AND THE KP INDEX OF MAGNETIC  
ACTIVITY -U-  
AUTHOR--(02)-IVANOV, K.G., MIKERINA, N.V.  
COUNTRY OF INFO--USSR  
SOURCE--GEOMAGNETIZM I AERONOMIJA, VOL. 10, NO. 2, 1970, P. 331-333  
DATE PUBLISHED-----70  
SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY  
TOPIC TAGS--SPACE MAGNETIC FIELD, GEOMAGNETIC ACTIVITY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1997/0150 STEP NO--UR/0203/70/010/002/0331/0333  
CIRC ACCESSION NO--AP0117146  
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0119146

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE RELATION BETWEEN THE INTERPLANETARY MAGNETIC FLUX AND THE KP INDEX OF MAGNETIC ACTIVITY. SIMILARITY IS ESTABLISHED BETWEEN THE VARIATIONS OF BOTH VARIABLES IN SEPTEMBER, 1962, AND IN JANUARY, 1965. ILLUSTRATIVE DIAGRAMS ARE PLOTTED. FACILITY: AKADEMIIA NAUK SSSR, INSTITUT ZEMNOGO MAGNETIZMA, IONOSPHERY I RASPROSTRANENIIA RADIOVOLN, KRASNAYA PAKHRA, USSR.

UNCLASSIFIED



1/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--AGING AND CORROSIVE ACTION OF TURBINE OILS IN THE PRESENCE OF WATER  
-U-  
AUTHOR-(04)-IVANOV, K.I., LUZHETSKIY, A.A., ALEKSANDROV, A.N., SEREGINA,  
L.SH.  
COUNTRY OF INFO--USSR  
SOURCE--TEPLOENERGETIKA 1970, 17(2), 62-7  
DATE PUBLISHED-----70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--CHEMICAL STABILITY, TURBINE OIL, CHEMICAL COMPOSITION,  
CORROSION RATE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3001/2073 STEP NO--UR/0096/70/017/002/0062/0067  
CIRC ACCESSION NO--AP0127446  
UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70  
 CIRC ACCESSION NO--AP0127446  
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COM. TURBINE OILS (CONTG. 0.1 OR 0.8PERCENT S) UNDERGO SUBSTANTIAL CHANGES AS A RESULT OF CONTACT WITH H SUB2 O AT 90DEGREES, E.G., THE ACID NO. INCREASES (FROM 0.0 TO 0.2 OR 0.8 MG KOH-G, FOR THE OILS CONTG. 0.8 OR 0.1PERCENT S, RESP.), THE OILS BECOME CORROSIVE WITH RESPECT TO MANY METALS, AND METALLIC SOAPS ARE FORMED (AND DISSOLVE IN THE OIL) UPON CONTACT WITH METALS; SUCH PHENOMENA ARE RESPONSIBLE FOR THE AGING OF THE OILS IN ACTUAL SERVICE. THE CORROSION RATE OF STEEL IN SUCH AGED OILS, WITH INITIAL S CONTENTS OF 0.1 OR 0.8PERCENT, REACHES 42.87 OR 151.81 G-M PRIME2 (THE TEST DURATION WAS 70 HR IN THE LOW S AND 304 HR IN THE HIGH S OIL), RESP. THE HIGHER CORROSION RATE IN THE AGED HIGH S OIL, IN SPITE OF ITS LOWER ACID NO., IS ATTRIBUTED TO THE FORMATION OF LARGER AMTS. OF WATER SOL. CORROSIVE ACIDS; THE SLOWER OXIDN. OF THE HIGH S OIL IS ATTRIBUTED TO THE PRESENCE OF ANTIOXIDANT ADDITIVES. THE CORROSION RATES OF NONFERROUS METALS (BRONZE, BRASS, BABBITT) IN THE AGED OILS IS QUITE LOW, E.G., BETWEEN 1.3 AND 8 G-M PRIME2, FOR THESE TEST TIMES. THE ADDN. OF AN OXIDN. INHIBITOR (IONOL) TO THE LOW S OIL DID NOT REDUCE THE CORROSIVENESS OF THE OIL AFTER AGING, IN SPITE OF A SUBSTANTIAL DECREASE IN THE DEG. OF OXIDN. OF THE OIL. FACILITY: VYSES. TEPLOTEKH. INST., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 615.371:576.851.49].074

SINILOVA, N. G., PERSHINA, Z. G., DUPLISHCHEVA, A. P., and IVANOV, K. K.,  
Institute of Epidemiology and Microbiology imeni Gamaleya, Academy of  
Medical Sciences USSR

"Biochemical Composition of Preparations From Original Sh. flexneri 550  
Cultures and Mutants With Increased Radioresistance"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 8, 1971,  
pp 102-107

Abstract: Analysis of the basic chemical composition of preparations from  
Sh. flexneri 550 cultures and mutants obtained by repeated gamma irradiation  
failed to disclose any differences between them with respect to nitrogen,  
phosphorus, and nucleic acids. However, cells of the mutants contained  
smaller amounts of proteins and carbohydrates but more lipids than did cells  
of the original culture. The biochemical composition (according to the  
above indices) of the antigens isolated from the original cultures and mu-  
tants was very similar. All the preparations from the mutants differed  
markedly from the original cultures in qualitative and quantitative compo-  
sition of carbohydrates.

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Acc. Nr: AP0043867-KK IVANOV Ref. Code: UR 0016

PRIMARY SOURCE: Zhurnal Mikrobiologii, Epidemiologii, i  
Immunobiologii, 1970, Nr 2, pp 37-42

ISOLATION, PURIFICATION AND BIOCHEMICAL STUDY  
OF SURFACE ANTIGENS FROM S. STANLEY

P. Sh. Gashimova, R. N. Uvarova, L. K. Stepanova, K. K. Ivanov

The authors carried out a comparative biochemical analysis of superficial individual antigens of two representatives of salmonella, group B (S. stanley and S. paratyphi B). Antigens, isolated by water-salt extraction were purified and fractionated by gel filtration on Sephadex G-75 and G-200. The antigens represented phosphorylated protein-lipoid-polysaccharide complexes.

It was established that the qualitative composition of polysaccharide components of K-antigens was similar, and that polysaccharide components of O-antigens were also identical. One of the surface antigens — K-antigen contained galactose, glucose, xylose and traces of mannose, rhamnose and hexosamine, whereas O-antigen additionally contained a carbohydrate not present in the K-antigen. In difference from the polysaccharide of somatic O-antigen, surface O- and K-antigens of S. stanley and S. paratyphi B contained no heptose.

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REEL / FRAME  
19770291

6 DI

USSR

USSR 612.745

IVANOV, K. P., TKACHENKO, Ye. Ya., and YAKIMENKO, M. A., Laboratory of General Physiology, Institute of Physiology, Siberian Branch of the Academy of Sciences USSR, and Laboratory of Thermoregulation, Institute of Physiology named I. P. Pavlov, Novosibirsk-Leningrad

"The Temperature Effect of Muscular Contractions After Adaptation to Cold"

Leningrad, Fiziologicheskii Zhurnal SSSR, Vol 56, No 10, Oct 70, pp 1433-1443

Abstract: The effect of the organism's adaptation to cold on the amount of heat generated by muscular contraction was studied. The method used was based on comparison of the index of bioelectrical muscular activity, as depicted in sudden peaks on the electromyogram induced by cold tremors and voluntary contraction, with the value of the increase in muscular temperature. Albino male rats 200-300 grams in weight kept at temperatures of 2 to 4°C in tight individual cages (permitting normal posture but limiting mobility) were used. For comparison purposes, control rats in a vivarium were kept at a constant temperature of 20±2°C. Temperature measurement was accomplished with the help of electrodes attached to musculus tibialis anterior and musculus trapezius. The investigations established that normally higher temperatures in the muscles are the result of muscular contractions.

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USSR

IVANOV, K. P., et al, Fiziologicheskii Zhurnal SSSR, Vol 50, No 10, Oct 70,  
pp 1438-1443

After the organism's adaptation to cold, however, the temperature generated by muscular contraction is approximately 1.5-2 times higher than that of the norm. It was found also that this temperature effect is more pronounced in the neck area than in the knee muscles.

USSR

UDC: 612.55

TKACHENKO, Ye. Ya., and IVANOV, K. P., Laboratory of General Physiology, Institute of Physiology, Siberian Department of the Academy of Sciences USSR, Novosibirsk; Laboratory of Thermal Regulation, Institute of Physiology imeni I. P. Pavlov, Academy of Sciences USSR, Leningrad

"Physiological Mechanisms of Chemical Thermoregulation During Adaptation to Cold"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenova, Vol 57, No 1, 1971, pp 111-115

Abstract: Rats and rabbits were adapted to cold at  $0-4^{\circ}\text{C}$  and minus  $30 - \text{minus } 10^{\circ}\text{C}$ , respectively. Muscular-regulatory muscle activity of the animals in the form of cold shivering and tonic contractions at low temperatures ( $10-12^{\circ}$  and minus  $6 - \text{minus } 3^{\circ}$  for rats and rabbits, respectively) was recorded electromyographically and related to the  $\text{O}_2$  consumption by the muscles. The data obtained were compared with those from similar experiments on animals of the same species that had not been adapted to cold. On exposure of the animals to low temperatures, the increment in muscle electric activity was smaller for animals adapted to cold than control animals which had not been adapted. However, the increase in  $\text{O}_2$  consump-

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USSR

TKACHENKO, Ye. Ya., and IVANOV, K. P., Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenova, Vol 57, No 1, 1971, pp 111-115

tion by muscles per unit of muscle electric activity was much greater for animals adapted to cold as compared with the control animals - i. e., the thermal regulation response based on chemical processes in muscles during exposure to low temperatures was more effective upon adaptation to cold.

2/2



Radiobiology

USSR

UDC 617-001.28-092:519.24

ZHERBIN, YE. A., ZHERBIN, B. N., BESYADOVSKIY, R. A., and IVANOV, K. V.,

"Mathematical Model of Radiation Injury for Applying Experimental Data to Man"

Moscow, Meditsinskaya Radiologiya, Vol 15, No 12, 1970, pp 42-44

Abstract: A comparison of the results of animal experiments shows that the general patterns of development of radiation sickness in animals are fundamentally the same as in man. Common distributions of radiation lesions in different species of animals by degree of severity suggest that analogous relationships exist in man. Since the reaction to radiation of a given species varies from individual to individual, the phenomenon is largely a random process. The proposed stochastic model of radiation injury involving the use of a normal distribution function makes it possible to extrapolate data obtained in radiobiological experiments (taking into account species sensitivity) to man on the basis of the common distribution patterns of radiation lesions according to the degree of severity. The degree of severity can be precisely determined from the number of individuals dying in a given period of time after exposure.

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US3R

UDC 591.3+612.81

IVANOV, I. A., and TIMKO, N. A., Institute of Gerontology, Academy of Sciences USSR, Kiev

"Neuromuscular Function and Oxygen Tension in Peripheral Tissue of Persons of Different Ages in Experimental Ischemia"

Leningrad, Fiziologicheskii Zhurnal SSSR, No 12, 1971, pp 1,832-1,839

Abstract: Neuromuscular function was studied in 3 groups of healthy persons, age 18 to 32, 60 to 74, and 75 to 89, after circulatory hypoxia was induced by compressing the blood vessels of an extremity with a Riva-Rocci cuff. Changes in the rate of propagation of nerve impulses along the ulnar nerve and in the amplitude and duration of action potential of the abductor digiti quinti (of hand) set in later and were less pronounced in those over 60 than in the younger persons. The dynamics of oxygen tension in subcutaneous tissue during ischemia reflected a less distinct lowering of the  $PO_2$  level in the elderly because of the age-related decrease in intensity of tissue respiration. While the neuromuscular functional parameters were slower to return to normal in the older persons, the differences between the various age groups with respect to stabilization of the  $PO_2$  level were insignificant.

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USSR

UDC 66.011.681.2

IVANOV, L. A., ZIPINEV, V. G., Engineers

"Vacuum Deposition of a Layer of Gold on the Inside Surfaces of Hollow Kovar Parts"

Moscow, Priory i Sistemy Upravleniya, No 11, 1973, pp 55-56

Abstract: The process of vacuum deposition of gold on the inside surface of a hollow kovar cylinder with small inside diameter has been realized using a specially developed evaporator [L. A. Ivanov, et al., USSR Author Certificate No 240966, Byulleten' izobreteniy, No 3, 1971]. The operating principle of this device is discussed, and the device is described. The deposition of the layer of gold on the collector rotating around the evaporator and previously heated to 420-440°C is realized with a rarefaction in the vacuum chamber of more than  $1 \cdot 10^{-5}$  mm Hg. With complete evaporation of two grams of gold in the evaporator, the inside surface of the collector was coated with a dense uniform layer 4 microns thick. The time for complete evaporation of the gold was 18 minutes. After completing the deposition operation, the chamber temperature was lowered to 360-420°C and the applied film was annealed for 30 minutes at this temperature. To protect the S43-1 glass which formed part of the collector from thermal shock the rate of increase and decrease in temperature in the vacuum chamber had to be kept from exceeding 180°C/hour.

1/1

USSR

ELECTRONICS  
Microelectronics

UDC: 534.252.082.73-8

ERITSYN, K. I., DEMIDOV, V. P., MARTYNOV, T. P., MOCHALOV, B. F., SMIRNOV, A. A.,  
and IVANOV, L. A.

"Studying Thin-Film CdS-Piezo-Converters"

Moscow, Radiotekhnika i Elektronika, Vol. 15, No 9, 1970, pp 1937-1944

Abstract: The authors present the results of the study of CdS-piezo-converter test specimens vaporized onto  $Al_2O_3$ . Basic converter characteristics are calculated and it is shown that the frequency characteristic depends as much on the relationships between the electrical impedances of a converter and the measuring tract as it does on the relationships between the mechanical impedances of cadmium sulfide and the material of an acoustic line. A shift in the least loss point is predicted for CdS on  $Al_2O_3$  with respect to mechanical resonance frequency. This shift makes it possible to vary the band width and the position of the least loss point completely by electrical methods. A simple equivalent converter circuit proposed by the authors makes it readily possible to estimate its harmonization with the measuring tract and to determine the aspect of the frequency characteristic for various methods of excitation. The experimental converter specimens yielded a loss in the order of 30 db for a double conversion with a band of approximately 35 percent. The minimal loss point shifts toward the lower frequency region in comparison with the acoustic resonance point. The experimental and theoretical data are in good agreement. The loss values presented are not minimal and can be reduced more using

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- USSR

BRITSYN, K. I. et al., Radiotekhnika i Elektronika, Vol. 15, No 9, 1970, pp 1937-1944

supplementary matching equipment. The original article has six figures, 12 formulas, and nine bibliographic entries.

2/2

IVANOV, L. A.

JPAS 53487  
1972.06.14/20  
UDC 612.26-06:612.766.2

CHANGE IN TISSUE OXYGEN METABOLISM DURING THE INITIAL PERIOD OF HYPOKINESIA  
[Article by L. A. Ivanov, Moscow, Kosmicheskaya Biologiya i Meditsina, Russian, Vol 6, No 1, PP 82-86, 1972, submitted for publication 10 March 1971]

**Abstract:** The effect of a six-day bedrest experiment on external respiration and oxygen metabolism in the subcutaneous connective tissue was studied in healthy test subjects in the age group 24-35 years. During a post-experiment oxygen inhalation test the time interval in which arterial oxygen saturation attained a maximum tended to increase. This was indicative of certain limitations on external respiration functional capabilities: oxygen consumption decreased, spiographic oxygen deficiency increased and the respiration level of the subcutaneous connective tissue slightly declined. After the six-day bedrest experiment oxygen supply and the oxygen tension level in the subcutaneous connective tissue remained virtually unchanged.

The problem of the effect of hypokinesia on the functional state of the body is of primary interest for different branches of medicine. Particular attention should be given to the effect of a restriction of physical activity on oxygen metabolism in the tissues. It is precisely in the tissues that one can see the overall influence of activity of the external respiration apparatus, blood system, and hemodynamics in the sense of an optimum maintenance of the energy process. Here there is a seeming interaction of the most important components of body oxygen metabolism: oxygen delivery and consumption.

The purpose of our investigation was a study of the effect of hypokinesia on the oxygen supply to the tissues and the intensity of tissue respiration.

#### Method

Oxygen pressure ( $PO_2$ ) in the tissues was studied. It was determined in the subcutaneous cellular tissue of the left forearm by the polarographic method. The active cathode was an open platinum needle electrode 0.4 mm in

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UDC 535.211

BONDARENKO, G. G., IVANOV, L. I., and YANUSHKEVICH, V. A., Moscow

"Effect of Gigantic Laser Pulses on the Microstructure of Aluminum"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 4, Jul-Aug 73, pp19-21

**Abstract:** An electron microscope study was made of defect formation in aluminum under the effect of gigantic laser pulses where the aluminum had a purity of 99.99%. Disk samples, 50 microns thick, were vacuum annealed at 600°C for four hours prior to laser bombardment. After annealing, the samples were placed on a glass plate in distilled water and bombarded with laser pulses at room temperature. Bombardment was done in three modes -- I, II, III, determined by the level of laser pumping, with mode III being the maximum radiation capacity. The study showed that structural damage results from laser exposure where the nature and degree of sample damage depended on the mode of irradiation and the distance of the investigated section from the crater epicenter. High concentrations of dislocation loops were found in samples for all three modes with the densities amounting to  $10^{14}/\text{cm}^3$  for mode I,  $5 \cdot 10^{12}/\text{cm}^3$  for mode II, and  $7 \cdot 10^{13}/\text{cm}^3$  for mode III. Three figures, three bibliographic references.

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USSR

UGC: 550.834

MOSHINSKIY, I. B., ~~IVANOV, I. I.~~, Institute of Geology and Development of Fossil Fuels

"A Method of Processing Wave Information"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obratny, Tovarnyye Znaki, No 7, Mar 72, Author's Certificate No 329493, Division G, filed 4 Sep 70, published 9 Feb 72, p 183

Translation: This Author's Certificate introduces: 1. A method of processing wave information such as seismic data. The procedure is based on selection of waves by characteristics of directivity. As a distinguishing feature of the patent, the signal-to-noise ratio is increased by sequential nonsimultaneous multiplication or division (depending on the sign of adjacent amplitudes) of waveforms whose amplitudes are previously increased by unity, after which the absolute value of the repeatedly multiplied or divided amplitudes of the waveforms are reduced by unity. 2. A modification of this method distinguished by the fact that the waveforms are multiplied when their amplitudes have the same sign, and this sign is given to the product. 3. A modification of this method in which the waveforms are

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USSR

MOSHINSKIY, I. B., IVANOV, L. I., USSR Author's Certificate No 329493

divided when their amplitudes are different in sign, the dividend being the amplitude which is larger in absolute value, and the quotient being given the sign of the dividend.

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Nuclear Science and Technology

USSR

I

UDC 534.9.019.3

BYSTROV, L. N., IVANOV, L. I., PLATOV, YU. K., Moscow

"Radiation Diffusion Mechanisms in Metals"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 1, Jan-Feb 70, pp 14-22

Abstract: The authors review existing theories of the radiation amplification of diffusion in metals, on the thesis that currently used models of stationary radiation diffusion are governed by movement of radiation vacancies are not justified. It is demonstrated that in the temperature range where interstitial atoms are mobile and vacancies immobile, the process of radiation diffusion is necessarily nonstationary. Given a constant rate of introduction of radiation defects, the radiation diffusion coefficient will diminish monotonically from the accumulation of vacancies, and in samples where there is a fairly high concentration of constantly active dislocations

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BYSTROV, L. N., IVANOV, L. I., Fizika i Khimiya Obrabotki  
Materialov, No 1, Jan-Feb 70, pp 14-22

this effect will be quite marked. On this basis, an equation  
for the coefficient of nonstationary interstitial radiation  
diffusion is derived.

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1/2 022 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--MECHANISMS OF RADIATION DIFFUSION IN METAL -U-  
AUTHOR--BYSTROV, L.N., IVANOV, L.I., PLATOV, YU.M.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. KHIM. ORRAB. MATER. 1970, (1) 14-22  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--CRYSTAL DISLOCATION, METAL DIFFUSION, CRYSTAL LATTICE VACANCY,  
IRRADIATION  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1988/0632 STEP NO--UP/0472/70/000/001/0014/0022  
CIRC ACCESSION NO--AP0105611  
UNCLASSIFIED

2/2 022

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0105611

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BASIS IS FOUND TO BE INADEQUATE FOR THE EXISTING STEADY STATE MODELS OF RADIATION ENHANCED DIFFUSION IN METALS GOVERNED BY THE MIGRATION OF RADIATION PRODUCED VACANCIES. THE DIFFUSION MECHANISM IS ANALYZED IN TERMS OF A PARTICIPATION OF INTERSTITIAL ATOMS IN THE DIFFUSION PROCESS. IN THE TEMP. RANGE IN WHICH MOBILE INTERSTITIAL ATOMS AND AS YET IMMOBILE VACANCIES OCCUR, THE RADIATION DIFFUSION PROCESS MUST BE UNSTEADY STATE. AT A CONST. RATE OF FORMATION OF RADIATION DEFECTS, THE COEFF. OF RADIATION DIFFUSION WILL DECREASE MONOTONICALLY OWING TO AN ACCUMULATION OF VACANCIES (SINKS FOR INTERSTITIAL ATOMS). THIS EFFECT MUST BE INTRINSIC IN SAMPLES CONTG. A SIGNIFICANT CONCN. OF CONSTANTLY ACTING SINKS (DISLOCATIONS) AS THE IMMOBILE VACANCIES ACCUMULATE OWING TO A PREFERENTIAL ANNIHILATION OF A PORTION OF MOBILE INTERSTITIAL ATOMS ON THE DISLOCATIONS RATHER THAN ON THE VACANCIES. AN EQUATION FOR THE COEFF. OF INTERSTITIAL RADIATION DIFFUSION IS INFERRED.

UNCLASSIFIED

USSR

UDC 669.017:539.16

BONDARENKO, G. G., and IVANOV, L. I., Moscow

"Effect of Electron Irradiation on the Mechanical Properties and Structure of Aluminum"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 6, Nov-Dec 72, pp 47-50

Abstract: Aluminum samples (99.9 and 99.99% pure) were exposed to electron irradiation with an energy of 2.3 Mev at room temperature. Intensity was  $1 \times 10^{14}$  electrons/cm<sup>2</sup>-sec and dosages were 2.5, 4.3, and  $7.2 \times 10^{18}$  electrons/cm<sup>2</sup>. Prior to irradiation the samples were vacuum annealed at 580°C for two hours. Part of the annealed samples were not subjected to irradiation but tested in their as-annealed form. Mechanical tests showed that the irradiated samples had higher tensile strengths and yield strengths and lower elongation than their non-irradiated counterparts and also that the tensile and yield strengths of the irradiated samples increased with increased dosage flux and elongation decreased with increased flux. This strengthening effect has been associated with the presence of impurities which form visible accumulations that act as effective blockades to dislocation movement. Three figures, 1 table, 8 bibliographic references.

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USSR

UDC 539.184

IVANOV, L. N., IVANOVA, Ye. P., and SAFRONOVA, U. I.

"Third-Order Feynman Diagrams for Degenerate States of Atomic Systems"

Leningrad, Optika i Spektroskopiya, vol. 31, No. 4, 1971, pp 489-495

Abstract: Third-order terms of the expanded energy expression in the theory of perturbations with simple ratios, for the configuration states of  $1s2s$ ,  $1s2p$ ,  $1s^22s$ ,  $1s^22p$  are computed in this article. Also computed are the coefficients of  $Z^{-1}$  in the Hartree-Fock expansion for the configurations of  $1s^22s$  and  $1s^22p$ . Comparison of the results of these computations with others in the literature indicate the importance of the correlation corrections taken into account by the simple-ratio terms. The degenerate states in the zero order of the perturbations theory are examined without the need for solving the secular equation in order to compute the energy shift. Results of the computations are given in the form of a table listing the third-order energy corrections for the various states.

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IVANOV, L. P., et al., *Kvantovaya elektronika*, No 5(11), 1972, pp 92-94

threshold of generation. One of the special features of operation is the concentration of radiation into the passive n-region of the laser and reduction of the directivity pattern of radiation from the resonator mirror normal. The authors thank P.G. Yeliseyev for discussion of the results of the work and M.A. Ambartsyan and V.G. Karnaubkov for giving specimens of lasers. 3 fig. 11 ref. Received by editors, 9 March 1972; after revision, 5 Sept 1972.

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USSR

UDC: 621.373.826

YELISEYEV, P. G., IVANOV, L. P., LOGGINOV, A. S., SENATOROV, K. Ya.

"Frequency Self-Modulation of Emission in an Injection Laser"

Kratkiye soobshch. po fiz. (Brief Reports on Physics), 1972, No 6, pp 53-55  
(from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12B148 by A. K.)

Translation: Spectral chronograms with a resolution of  $2 \cdot 10^{-11}$ - $10^{-10}$  s are obtained for an isolated emission channel in a strip laser based on a double heterostructure at 300°K. It is evident from these chronograms that frequency self-modulation indicates instability of single-mode emission, and that this self-modulation accompanies buildup of pulsations and cutoff of single-mode emission with a transition to nonstationary (spike) multimode emission. Frequency self-modulation leads to considerable broadening of the individual excited modes, and to blurring of the spectrum. The influence of the frequency self-modulation on the emission spectrum increases with an increase in pumping.

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1/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--BLOOD GROUPS AND SENSITIZATION TO THE RHESUS FACTOR -U-  
AUTHOR--(02)-SHUVAYEVA, B.A., IVANOV, L.V.  
COUNTRY OF INFO--USSR  
SOURCE--SOV MED 33(1): 68-71. 1970  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--BLOOD TYPE, EMBRYOLOGY  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1998/0176 STEP NO--UR/0399/70/033/001/0008/0071  
CIRC ACCESSION NO--AP0120876  
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0120876

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. THE SENSITIZATION OF WOMEN TO THE RHESUS FACTOR MAY BE RELATED TO THE GROUP OF THE MATERNAL AND FETAL (HUSBAND) BLOOD. THE RHESUS SENSITIZATION DEVELOPS MOST OFTEN IN WOMEN BELONGING TO THE GROUP AB(IV); IT IS LEAST FREQUENT IN WOMEN OF BLOOD GROUP O(I). THE INCIDENCE OF SENSITIZATION TO THE RHESUS FACTOR AMONG WOMEN, DEPENDING UPON THEIR GROUP AFFILIATION, DEVELOPS IN THE FOLLOWING DESCENDING ORDER: AB(IV), A(II), B(III) AND O(I). AMONG RHESUS SENSITIZED FEMALES THE AB(IV) BLOOD GROUP IS ENCOUNTERED 5.1PERCENT MORE OFTEN AND THE O(I) GROUP 5.1PERCENT LESS THAN USUAL. FACILITY: BELORUSS, RES. INST. BLOOD TRANSFUS., MINSK. USSR.

UNCLASSIFIED

USSR

UDC: 539.3

IVANOV, M. A.

"Digital Computer Solution for the Problem of Finding Different Stressed State Regions in an Annular Diaphragm"

Tr. TsNII stroit. konstruksiy (Works of the Central Scientific Research Institute of Structural Designs), 1971, vyp. 20, pp 86-92 (from RZh-Mekhanika, No 9 Sep 72, Abstract No 9V176)

Translation: The author considers a flexible circular diaphragm with a central ring. The diaphragm is embedded in a pliable contour, and is subjected to a uniformly distributed load and to a concentration of force in the center. The material of the diaphragm is homogeneous, isotropic, incompressible in the plastic region, and conforms to the Mises condition of plasticity. The problem reduces to solution of first-order nonlinear differential equations in the plastic region, and second-order equations in the elastic region. The boundaries of these regions are sought during the process of solution. An iteration method is used for solution of the problem, which enables realization of the computational process on a digital computer.

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1/3 017 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--EFFECT OF TEMPERATURE AND PH OF THE MEDIUM ON THE CONCENTRATION OF  
FREE RADICALS IN WOOD AND ON ITS BRIGHTNESS -G-  
AUTHOR--(04)--BUKHTEYEV, B.M., KLEYMENOVA, T.A., IVANOV, M.A., SHCHERBAKOVA,  
L.D.  
COUNTRY OF INFO--USSR  
SOURCE--BOM. PROM. 1970, (4), 22-3  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, MATERIALS  
TOPIC TAGS--PYROLYSIS, WOOD, CHAIN REACTION, EPR SPECTRUM, FREE RADICAL,  
CHEMICAL REACTION TEMPERATURE, THERMAL DECOMPOSITION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1999/1766 STEP NO--UR/0329/70/000/004/0022/0023  
CIRC ACCESSION NO--AP0123564  
UNCLASSIFIED

2/3 017

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123564

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EXOTHERMIC DECOMPN. OF WOOD (DURING PYROLYSIS), WHICH CAN BE REGARDED AS A SERIES OF CHAIN REACTIONS INVOLVING FREE RADICALS, BEGINS AT 275DEGREES. THE PRESENCE OF FREE RADICALS IN WOOD AT LOWER TEMPS., SUCH AS USED IN KRAFT AND SODA PULPING, HAS BEEN REPORTED AND THERE IS REASON TO BELIEVE THAT WOOD DEGRADATION PROCESSES, PROBABLY INVOLVING FREE RADICALS, OCCUR AT THESE LOW TEMPS. EPR SPECTRA OF SPRUCE, BIRCH, AND ASPENWOOD FLOUR SAMPLES EXPOSED FOR 5-25 MIN TO TEMPS. OF 120, 140, AND 160DEGREES SHOWED THAT 5 MIN HEATING AT 120DEGREES RESULTS IN RECOMBINATION OF PART OF THE STABLE FREE RADICALS. FURTHER HEATING AT THIS TEMP. HAS NO EFFECT ON THE FREE RADICAL CONCN. THE CHANGES IN RADICAL CONCN. DURING HEATING AT 140 AND 160DEGREES DEPEND ON THE NATURE OF THE WOOD. IN SPRUCE AND BIRCHWOODS, RECOMBINATION OF RADICALS TAKES PLACE DURING THE 1ST FEW MIN; WHILE IN ASPENWOOD, THIS PROCESS IS NOT OBSERVED BECAUSE OF THE INTENSE FREE RADICAL INITIATION WHICH BEGINS DURING THE 1ST MIN OF HEATING. HEATING AT 140 AND 160DEGREES CAUSES DARKENING OF THE WOOD. THE EXPTS. WERE REPEATED WITH WOOD FLOUR SAMPLES TREATED FOR 45 MIN AT 120-180DEGREES WITH BUFFER SOLNS. AT PH'S 1.4-12.5. SIMULTANEOUSLY DETNS. WERE MADE OF THE BRIGHTNESS OF THE WOOD. IN WEAKLY ACIDIC AND NEUTRL MEDIA, THE FREE RADICAL CONCN. WAS THE LOWEST AND THE WOOD BRIGHTNESS WAS THE HIGHEST. THIS CONFIRMS THE LIMITED FORMATION OF CHROMOPHORE GROUPS IN LIGNIN IN RADICAL REACTIONS AT NEUTRAL AND WEAKLY ACIDIC PH (SUCH REACTIONS OCCUR MORE EASILY AT ALK. PH).

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123564

ABSTRACT/EXTRACT--THE OVERALL CONCLUSION IS THAT THERMAL INITIATION OF  
FREE RADICALS OCCURS AT RELATIVELY LOW TEMPS., BUT THE REACTIONS  
INVOLVING FREE RADICALS ARE OF LOW INTENSITY AND DO NOT DEVELOP INTO  
CHAIN REACTIONS. FACILITY: VNIIB, LENINGRAD, USSR.

UNCLASSIFIED

1/2 029 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--ACETYLATION OF CELLULOSES I AND II WITH A LIMITED DEGREE OF  
POLYMERIZATION -U-  
AUTHOR-(CZ)-IVANOV, M.A., STRELYUGINA, I.A.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(4), 929-31  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, MATERIALS  
TOPIC TAGS--CELLULOSE, CRYSTALLIZATION, POLYMERIZATION, ANNEALING, ACETATE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3004/1947 STEP NO--UR/0080/70/043/004/0929/0931  
CIRC ACCESSION NO--AP0132208  
UNCLASSIFIED



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UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132208

ABSTRACT/EXTRACT--(U) GP-G- ABSTRACT. THE ACETYLATION OF COTTON CELLULOSE, CRYST. MODIFICATION I, FOLLOWED BY ANNEALING OF THE PRODUCTS GAVE THE CRYST. MODIFICATIONS I AND II OF CELLULOSE TRIACETATE. THE SAME PROCEDURE APPLIED TO CELLULOSE CRYST. MODIFICATION II GAVE ONLY CELLULOSE TRIACETATE II. FACILITY: VSES. NAUCH.-ISSLED. INST. TSELYUL.-BUM. PROM., LENINGRAD, USSR.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--PREPARATION OF CRYSTALLINE CYANAMIDE -U-  
AUTHOR--(04)-GOLOV, V.G., KUZNETSOVA, L.V., VODOPYANOV, V.G., IVANOV, M.G.  
COUNTRY OF INFO--USSR  
SOURCE--KHIM. PROM. (MOSCOW) 1970, 46(3), 198-200  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, PHYSICS  
TOPIC TAGS--CRYSTAL, CALCIUM COMPOUND, CYANAMIDE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/0531 STEP NO--UR/0064/70/046/003/0198/0200  
CIRC ACCESSION NO--AP0124226  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0124226

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN ORDER TO PREVENT FORMATION OF H SUB4 C SUB2 N SUB4 (I) IN THE MANUFG. OF H SUB2 CN SUB2 (II), A CACN SUB2 SUSPENSION IN H SUB2 O IS TREATED WITH CO SUB2 AT LESS THAN 20-5DEGREES. THE CA PRIME2 POSITIVE IONS ARE THEN REMOVED FROM THE RESULTING 5PERCENT II SOLN. BY ION EXCHANGE BY THE TECHNIQUE OF GOLDBERG, ET AL. (1966), THE PH IS ADJUSTED TO 4.5-5.5 BY THE ADDN. OF H SUB2 SO SUB4, AND THE SOLN. IS CONCD. BY A 2 STAGE VACUUM EVAPN. PROCESS TO 30PERCENT II BY EVAPN. AT 40DEGREES AND TO 70-80PERCENT II BY EVAPN. AT 20DEGREES. THE II IS THEN CRYSTD. BY COOLING THE SOLN. TO MINUS 15DEGREES; THE PRODUCT CONTAINS 5PERCENT H SUB2 O, 10PERCENT I AND THE BALANCE II. A PRODUCT OF LOWER I CONTENT (4.5PERCENT) MAY BE OBTAINED BY HEATING THE CRYSTALS TO 20DEGREES AND REMOVING THE LIQ. PHASE. THE II MAY BE STORED FOR UP TO 1 MONTH AT 20DEGREES BUT MORE PROLONGED STORAGE REQUIRED STABILIZATION OF THE II (TO PREVENT FORMATION OF I, E.G., UNSTABILIZED II IS QUANT. CONVERTED TO I WITHIN 11 MONTHS AT 20DEGREES) BY THE ADDN. OF 1PERCENT OF BA0H OR 0.2PERCENT OF IODINE; AFTER THE STABILIZATION, THE MOLTEN (AT 45-50DEGREES)II MAY BE FROZEN AND GRANULATED BY CRUSHING.

UNCLASSIFIED

USSR

UDC: 621.375.82

LOTKOVA, E. N., IVANOV, M. N., SAVCHENKO, V. F., and SOBOLEV, N. N.

"Radiation Generation in the Five-Micron Region With a  $\text{CO}_2 + \text{N}_2 + \text{He}$  Mixture"

Moscow, V sb. Kvant. elektronika (Quantum Electronics--collection of works) "Sov. radio," No 1(13), 1973, pp 137-139 (from RZh--Fizika, No 7, 1973, Abstract No 7D1024)

Translation: Generation is obtained in the five-micron region in a laser tube with a  $\text{CO}_2 + \text{N}_2 + \text{He}$  mixture cooled by liquid nitrogen. The oscillation was observed, and an amplification of 40 lines corresponding to the oscillatory-rotatory transitions of the CO molecule in the  $\nu' - \nu$  interval from 4-3 to 12-11 was measured. Authors' abstract

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USSR

UDC 619:616.9-097:616.981.42-636.39

IVANOV, M. M., TAVAKAYSHVILI, M. YE., and SKLADCHIKOV, R. V., State Scientific Control Institute of Veterinary Preparations

"Immunomorphological Shifts in Goats Affected With Brucellosis"

Moscow, Veterinariya, No 10, 1971, pp 42-44

Abstract: Vaccination of adult goats and kids 4- to 5-months old with GNKI Brucella abortus 19 strain, Br. abortus 19, or Br. melitensis 2,506 produced morphological changes in the lymph nodes and organs typical of brucellosis. The changes were more pronounced in adults. Injection of immune animals with a virulent strain of Brucella elicited moderate benign cellular reactions in the remote lymph nodes and spleen. In general, the level and intensity of the pathomorphological changes varied with the level of immunity created by the vaccine.

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1/2 037 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--THERMOELECTRON AND THERMIONIC EMISSION OF IRON CATALYSTS OF AMMONIA  
SYNTHESIS STUDIED AS A METHOD FOR EXPOSING THE SPOTLINES OF THE CATALYST  
AUTHOR--(02)-PUONITSKIY, L.A., IVANOV, M.M.

COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, 11(1), 207-14

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THERMIONIC EMISSION, IRON, CATALYST, AMMONIA, POTASSIUM,  
CHEMICAL SYNTHESIS, ACTIVATION ENERGY, WORK FUNCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1997/0526

STEP NO--UR/0195/70/011/001/0207/0214

CIRC ACCESSION NO--AP0119445

UNCLASSIFIED

IVANOV, M.P.

**Introduction**  
The nature of the propagation of sound waves in water creates favorable conditions for the use of echolocation by aquatic organisms. Echolocation has reached the highest peak of development in dolphins [1-7] whose enormous and rather highly developed brain enables them to control locating sound pulses and to make a complex analysis of echosignals. Accordingly, knowledge of the physiology of the dolphin sonar system is of value not only from the general biological standpoint but also for biologic problems.

# Introduction

Black Sea dolphins (*Tursiops truncatus* and *Phocaena phocaena*) were found to be capable of detecting metal spheres 5 to 150 cm in diameter and cylinders of the same diameter and height from a distance of over 24 m. The spheres and cylinders could be differentiated from 17.0 and 18.5 m, respectively. The dolphin's echolocator adapted in the course of location, i.e., the locating signals adjusted to the parameters of the object located. The directivity of emission varied widely. The directivity pattern was scanned with no change in the position of the animal's head. The directivity pattern of reception to the horizontal and vertical planes narrowed with increasing frequency and decreasing duration of the signal. When the reception pattern is scanned by turning the head, there evidently takes place a spatial-frequency filtering that ensures the directed and coordinated reception of the echosignal.

Article by E. Sh. Arapov, V. A. Voznyak, Yu. V. Ivanenko, H. P. Ivanov, D. L. Orlovsky, B. F. Sergeyev, and V. I. Chelintseva. *Zhurnal Vysshel'mykh Biologii i Fizologii*, Russian, No 4, 1973, submitted 31 January 1973, pp 416-421.

PHYSIOLOGY OF THE SONAR SYSTEM IN BLACK SEA DOLPHINS

UDC 591.185.5:599.537

JPRS 60298

17 October 1973

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11 - USSR

2/2 037 UNCLASSIFIED PROCESSING DATE--23OCT70  
CIRC ACCESSION NO--AP0119445  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. "SPOTTINESS" (DEGREE OF NONUNIFORMITY OF THE SURFACE OF A CATALYST) WAS DETD. FROM THE THERMOELECTRON WORK FUNCTION ( $\Phi$  PRIME NEGATIVE) AND THE ACTIVATION ENERGY OF THERMIONIC EMISSION ( $\Phi$  PRIME POSITIVE). THE ACTIVATION THERMOEMISSION OF A SERIES OF FE CATALYSTS (FOR NH SUB3 SYNTHESIS) PROMOTED BY K. VALUES OF  $\Phi$  PRIME NEGATIVE,  $\Phi$  PRIME POSITIVE, AND THE PREEXPONENTIAL COEFF. A OF K PRIME POSITIVE EMISSION ARE GIVEN FOR A SERIES OF FE CATALYSTS HAVING DIFFERENT K SUB2 O CONC. PRESENCE OF AN ANOMALOUS SCHOTTKY EFFECT IMPLIES "SPOTTINESS" OF THE CATALYST SURFACE. ON INCREASING THE K SUB2 O CONC., THE VALUES OF  $\Phi$  PRIME POSITIVE AND A DECREASED. SURFACE REGIONS HAVING HIGH  $\Phi$  PRIME NEGATIVE CONTRIBUTE MAINLY TO THE EMISSION OF K PRIME POSITIVE. FACILITY: GOS. NAUCH.-ISSLED. PROEKT. INST. AZOTN. PROM. PROD. ORG. SIN., MOSCOW, USSR.

"APPROVED FOR RELEASE: 08/09/2001" CIA-RDP86-00513R002201120012-05

UNCLASSIFIED

USSR

UDC: 533.6.011.8

GRIGOR'YEV, Yu. N., IVANOV, M. S., Institute of Theoretical and Applied Mechanics, Siberian Department of the Academy of Sciences of the USSR, Novosibirsk

"Investigation of the Applicability of Certain Statistical Models in the Problem of Shock Wave Structure"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, Seriya Tekhnicheskikh Nauk, No 13(208), Issue 3, Oct 72, pp 33-38

Abstract: Various model kinetic equations of the form

$$\frac{d}{dt} f = v(M_+) [f_+ (\xi, M_+) - f],$$

are used to study flows of rarefied gas, where  $\xi$  is molecular velocity,  $\bar{r}$  is a coordinate in physical space,  $f(\bar{r}, \xi)$  is the distribution function,  $v$ ,  $f_+$  are functions of some aggregates of moments of the distribution function  $M_+$  and  $M_+$  respectively. A model of this type is found which is suited to describing flows of rarefied gas with large gradients of the macroparameters. The choice of model is based on comparing theoretical

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USSR

GRIGOR'YEV, Yu. N., IVANOV, M. S., Izv. SO AN SSSR, Ser. Tekhn. Nauk, No 13(208), Issue 3, Oct 72, pp 33-38

curves for the distribution of density in the shock wave as found for a number of models with the results of experiments conducted on direct shock waves in argon.

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USSR

UDC 546.3-19

IVANOV, M. V., MOISEYEV, V. P., and GORBUNOVA, K. M., Institute of Physical Chemistry, Academy of Sciences USSR, Moscow

"Structure and Some Properties of Ni-B Coatings Obtained by Chemical Reduction"

Moscow, Doklady Akademii Nauk SSSR, Vol 194, No 3, 1970, pp 610-613

Abstract: The article describes results of a study of the structure and some properties (hardness and magnetic characteristics) of Ni-B coatings and considers phase transformations induced by heat treatment. Thermographic and X-ray studies show that during annealing of the coatings not only the  $\text{Ni}_3\text{B}$  phase occurs, but also the  $\text{Ni}_2\text{B}$ . The quantity and nature of these phases determine the properties of the coatings subjected to annealing. An unusual relationship is found between the kinetics of the process of segregation of the  $\text{Ni}_3\text{B}$  and  $\text{Ni}_2\text{B}$  phases and the ratio of the concentrations of the components of the initial solid solution and these phases. This requires further quantitative analysis.

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USSR

UDC: 533.6.011.5:518.5

IVANOV, M. Ya., KRAYKO, A. N., NAZAROV, V. P., Moscow

"Some Results of a Numerical Study of Unconventional Plumes of Ideal Gas"

Moscow, Izv. AN SSSR: Mekhanika Zhidkosti i Gaza, No 4, Jul/Aug 72, pp 102-109

Abstract: The authors give the results of an investigation of supersonic jets of an ideal (inviscid and thermally nonconductive) gas escaping into space with reduced pressure in cases where the cross section of the jet at the nozzle tip is noncircular. The study is based on numerical integration of equations of three-dimensional supersonic flow using a "continuous" difference method of computation which enables flow calculation without isolating the shock waves which are typically formed in this type of problem. Principles governing the behavior of nonstandard exhaust plumes are given for nozzles with elliptical and nearly rectangular output. Calculations were done on the "BESM-6" computer.

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USSR

UDC 533.697

ZAMFORT, B. S. and IVANOV, M. YA.

"The Flow Around a Lattice of Symmetrical Profiles by a Transonic Anisotropic Flow"

Uch. zap. Tsentr. aerogidrodinam. in-ta (Scientific Notes of the Central Aerohydrodynamics Institute), Vol 3, No 6, 1972, pp 107-111 (from Referativnyi Zhurnal -- Mekhanika, No 4, 1973, Abstract No 4B370 by A. G. Plotkina)

Translation: The results are given of calculating the flow of an inviscous nonheat-conducting gas around a lattice of symmetrical profiles formed by arcs of a circle of equal radius with a zero stagger angle and a relative thickness of 13%. In order to solve the system of integral laws of conservation, which are equivalent to differential equations of flow and correlations at stream discontinuities, the scheme proposed by S. K. Godynov is used, as well as the one used for the analysis of stationary and nonstationary flow in nozzles and ducts (Godynov, S. K., Matem. sb., 1959, 47, No 3, 271-306 -- RZhMekh, 1960, No 7, 8595), and also (Ivanov, M. Ya. Krayko, A. N., Izv. AN SSSR. Mekh. zhidkosti i gaza, 1969, No 5, 77-83 -- RZhMekh, 1970, 38405). Only certain details of this method are presented which are characteristic for the case being considered. The streamline pattern is calculated for both the case of anisotropic free-stream flow and for entropy change in a cross section at the input

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USSR

ZAMIFORT, B. S. and IVANOV, M. Ya., Uch. zap. Tsentr. aerodinam. in-ta, Vol 3, No 6, 1972, pp 107-111.

to the lattice. Moreover, the change in the function  $p/\rho^{\frac{1}{2}}$  was assumed to follow the rule of  $p/\rho^{\frac{1}{2}} = A + B \cos(2\pi y/T)$ . Calculations were conducted for different pressures at the output of the lattice, which made it possible to use both the flow with the local sonic and with supersonic velocities, including the zones of deceleration. In the process of calculation the results were checked against outlay energy, impulse and enthalpy. The error of calculation in the stationary case did not exceed 2-5%. (12 bibliographic entries)

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USSR

UDC 518:517.9:533.011

IVANOV, M. Ya., KRAYKO, A. N., MIKHAYLOV, N. V., Moscow

"Method of 'Direct' Calculation for Two-Dimensional and Three-Dimensional Supersonic Flows. I"

Moscow, Zhurnal Vychislitel'noy Matematiki i Matematicheskoy Fiziki,  
Vol 12, No 2, Mar/Apr 72, pp 441-463

Abstract: The "direct" or "shock-capturing" method for calculating two-dimensional (plane and axisymmetrical) and three-dimensional supersonic flows of an inviscid, nonconducting gas is investigated. The basis of the method is a difference scheme which represents a steady-state analog of a known difference scheme proposed by S. A. Godunov for solving non-stationary problems in gasdynamics. The proposed method is not explicit and does not require special separation of shock waves, regions close to the angular points, and other singularities arising inside and on the boundaries of the region occupied by the flow. The method is very simple from the aspect of utilizing a computer, thus justifying its use in calculating both discontinuous and smooth flows. The efficiency of the method is illustrated in examples of calculating two-dimensional and three-dimensional flows. The accuracy of the calculation is controlled  
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USSR

IVANOV, M. Ya., et al., Zhurnal Vychislitel'noy Matematiki i Matematicheskoy Fiziki, Vol 12, No 2, Mar/Apr 72, pp 441-463

by internal control methods and by a comparison with the results of a calculation by the characteristics method. All calculations were made on the M-220 computer. The programs were compiled in ALGOL-60 language for the TA-1M translator.

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USSR

UDC 518.5:533.6.011.35

IVANOV, M. Ya. and RYL'KO, O. A.

"Analysis of Transonic Flow in Elliptical Nozzles"

Moscow, Izvestiya Akademii Nauk, SSSR, Mekhanika Zhidkosti i Gaza, No 3, 1972, pp 161-163

Abstract: The paper deals with flow in narrowing-expanding nozzles with an elliptical cross section. The solution is obtained numerically by means of a method, generalized for the three-dimensional case, which had earlier been used for the analysis of steady and nonsteady flows in nozzles and channels. The method is based upon a difference scheme, proposed by S. K. Godunov, for the "through" calculation of discontinuous solutions of the equations of gas dynamics, which permits the flow area to be calculated without isolation of the shock waves and other particularities of the stream. The influence of the ellipticity of the nozzle shape upon the flow pattern is analyzed. 4 figures.

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USSR

UDC 533.697

IVANOV, M. YA., KRAYKO, A. N.

"Calculation of a Mixed Flow of Gas in Nozzles"

Tr. Sektsii po chisl. metodam v gaz dinamike 2-go mezhdunar. kollokviuma po gazodinamike vzryva i reagiruyushchikh sistem, 1969. T. 2 (Works of the Section on Numerical Methods in Gasdynamics of the Second International Colloquium on the Gasdynamics of an Explosion and Reacting System, 1969. Vol. 2), Moscow, 1971, pp 3-26 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3B326)

Translation: A numerical solution of the direct problem of a mixed near-sonic flow of gas in nozzles is given by the buildup method. The boundary value problem for an elliptical-hyperbolic system with two independent variables is reduced to a mixed problem for a hyperbolic system of three independent variables. The flows of an ideal gas with  $\kappa = 1.4$  is calculated in plane and axisymmetric nozzles of various types. 23 ref. N. A. Kolesnikova.

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USSR

GRIN', V. T., IVANOV, M. YA., KRAYKO, A. N. (Moscow)

"Investigation of the Dynamics of Braking Flow of an Ideal Gas With a Closing Shock Wave"

Moscow, Mekhanika Zhidkosti i Gaza, No 4, Jul-Aug 70, pp 23-32

Abstract: The article deals with the problem of unsteady flow in an axially symmetrical channel with the centerbody in supersonic flow at the inlet and a given pressure (constant with respect to profile and variable with respect to time) in the plane of the outlet. Under steady conditions the closing shock wave is situated below the minimum profile (throat) of the channel. The calculations were carried out by a two-dimensional variant of a difference method, i.e., the equations of unsteady axially symmetrical flow were integrated. At the same time, the difference network was so selected (one cell between the channel walls) that the obtained results are closer to a unidimensional approximation. For the explanation of a series of effects detected in the calculation process (resonance, attenuation of high- $1/2$

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USSR

GRIN', V. T., et al, Mekhanika Zhidkosti i Gaza, No 4, Jul-Aug  
70, pp 23-32

frequency oscillation), use was made of solutions obtained on  
the basis of a linear approximation and a nonlinear approximation  
of the theory of small perturbations. 9 figures, 12 biblio-  
graphic entries.

2/2

1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--BUBBLING RATE AND GAS CONTENT IN A BUBBLING LAYER -U-  
AUTHOR-(02)-IVANOV, M.YE., BYKOV, V.P.  
COUNTRY OF INFO--USSR  
SOURCE--TECR. OSN. KHIM. TEKHNOL. 1970, 4(1), 127-30  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--GAS ANALYZER, AIR FLOW, TWO PHASE FLOW, WATER, ETHANOL,  
LABORATORY EQUIPMENT  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1987/0127 STEP NO--UR/0455/70/004/001/0127/0130  
CIRC ACCESSION NO--AP0103807  
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0103807

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MEASUREMENTS OF LOCAL BUBBLING RATES AND GAS CONTENT WERE PERFORMED IN A CIRCULAR COLUMN (DIAM. 100 MM) AND IN A RECTANGULAR ONE (270 TIMES 180 MM) AT HEIGHTS OF BUBBLING LAYER FROM 200 TO 400 MM. THE GASEOUS MEDIUM WAS AIR PASSING THROUGH PERFORATED GRID PLATES (HOLES OF DIAM. 1.5 AND 3.2 MM, FREE AREA 1.03, AND 18.5PERCENT). THE 2ND PLATE WAS INSTALLED FOR GAS VELOCITIES GREATER THAN 0.25 M-SEC. A THIN GLAZED MO NEEDLE (DIAM. SIMILAR TO 1.3) WAS INSERTED INTO THE BUBBLING LAYER THROUGH A HOLE IN THE COLUMN WALL. THIS NEEDLE WAS CONNECTED TO A BATTERY (1.5-3V) AND AN OSCILLOGRAPH AND THE CIRCUIT WAS CLOSED BY THE SLIGHTLY ACIDIC LIQ. IN THE COLUMN. FROM THE OSCILLOGRAM COULD BE READ THE NO. OF INTERRUPTIONS AND THEIR DURATION. THE BUBBLING RATE AND THE GAS CONTENT WERE THEN EASILY CALCD. THE EXPTL. CONDITIONS: WATER, ETOH, SACCHAROSE SOLNS. (CONCN. 36-66PERCENT); KINEMATIC VISCOSITY 0.65 TIMES 10 PRIME6 NEGATIVE MINUS 2.1 TIMES 10 PRIME4 NEGATIVE M PRIME2-SEC; INTERFACIAL TENSION FROM 7.0-2.2) TIMES 10 PRIME3 NEGATIVE KP-M; GAS VELOCITY 0.01-1.5 M-SEC ON THE FREE CROSS SECTION. THE AV GAS CONTENT ESTD. FROM EXPTL. RESULTS IS IN BEST ACCORDANCE WITH THE THEORY FROM AIZENBUD AND DILMAN (PLUS OR MINUS 30PERCENT). THE EFFECT OF THE COALESCENCE OF SMALL BUBBLES IS SHOWN. FACILITY: GOS. NAUCH. ISSLED. PROEKT. INST. AZOTIN-PRON. PROD. ORG. SIN., MOSCOW, USSR.

UNCLASSIFIED

2/2 048

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0120414

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY WAS MADE OF THE HEAT TRANSFER BETWEEN THE WALL OF A HEATING BODY, IN THE FORM OF A PLATE (180 AND 20 MM HIGH) OR A CYLINDER (90.25 AND 4 MM DIAM.), AND A LAYER OF LIQ. THROUGH WHICH WAS BUBBLED A GAS AT A VELOCITY (W) OF 0.011-3.7 M-SEC. THREE DIFFERENT TYPES OF HEAT TRANSFER WERE ASSUMED: (1) ON THE SURFACE ADJACENT TO THE VERTICAL LAYER BETWEEN THE BUBBLES, THE MECHANISM OF HEAT TRANSFER IS SIMILAR TO THAT ON A SURFACE AROUND WHICH THERE IS TURBULENT FLOW. (2) ON THE LIQ. LAYER SURFACE SURFACE BETWEEN THE BUBBLE AND THE WALL, THE HEAT TRANSFER IS OF AN UNSTEADY STATE NATURE. (3) IN THE VERTICAL LAYER BETWEEN GAS BUBBLES, WHICH IS NOT INFLUENCED MUCH BY THEIR MOVEMENT, THE HEAT TRANSFER IS CAUSED BY CONVECTION. ON THE BASIS OF THIS MODEL, AN EQUATION FOR THE HEAT TRANSFER COEFF. WAS DERIVED. THE DEVIATIONS OF THE CALC. FROM THE EXPTL. VALUES OF THE HEAT TRANSFER COEFFS. WERE LESS THAN 25PERCENT. THE HEAT TRANSFER COEFFS. ALONG THE PERIMETER OF THE HEATING CYLINDER WERE EXPTL. DETD. AND THE MICROBOILING ON THE SURFACE AT A HIGH HEAT LOAD WAS STUDIED. FACILITY: GOS. NAUCH.-ISSLED. PROEKT. INST. AZOTN. PROM. PACD. ORG. SIN., MOSCOW, USSR.

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--THE FORGE OF MILITARY MEDICAL CADRE -U-  
AUTHOR--IVANOV, N.  
COUNTRY OF INFO--USSR  
SOURCE--MEDITSINSKAYA GAZETA, AUGUST 4, 1970, P 3, COLS 1-5  
DATE PUBLISHED--04AUG70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, BEHAVIORAL AND SOCIAL SCIENCES  
TOPIC TAGS--ACADEMIC INSTITUTION, MILITARY MEDICINE, MEDICAL PERSONNEL, MEDICAL TRAINING  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--2000/0505 STEP NO--UR/9034/70/000/000/0003/0003  
CIRC ACCESSION NO--AN0124209  
UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AN0124209

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MILITARY MEDICAL ACADEMY IMENI KIRGV IN LENINGRAD IS THE OLDEST MILITARY SCHOOL AND A LARGE RESEARCH CENTER OF THE CCOUNTRY. IN 1923, THE ACADEMY WAS AWARDED A MERITORIOUS CERTIFICATE FOR ITS CONTRIBUTIONS TO COMMUNIST CAUSES DURING THE CIVIL WAR AND IN CONJUNCTION WITH ITS 125TH ANNIVERSARY. IN 1954, THE ACADEMY WAS AWARDED THE ORDER OF LENIN FOR CONTRIBUTIONS TO SCIENCE AND TRAINING MILITARY DOCTORS AND, IN 1968, IT WAS AWARDED THE ORDER OF RED BANNER IN CONJUNCTIONS WITH THE 50TH ANNIVERSARY OF ARMED FORCES. CURRENTLY THE ACADEMY IS UNDERGOING SOME EXPANSION, A LARGE BUILDING WHICH WILL HOUSE AUDITORIUMS IS BEING CONSTRUCTED. THE ACADEMY OFFERS GRADUATE PROGRAMS FOR HIGHER DEGREES BOTH FOR MILITARY AS WELL AS CIVILIANS, AD, YUNKTTURA AND ASPIRANTURA. ACADEMY GRADUATES N. P. USTINOV, M. N. AKHUTIN, YE. I. SMIRNOV, A. YA. BARABANOV, I. A. KLYUSS, P. G. STOLYPIN, AND N. N. YELANSKIY ARE MENTIONED AS "PROMINENT WORKERS OF THE MEDICAL SERVICE" WHO HAVE RECEIVED HIGH AWARDS. YOUNG GRADUATES MENTIONED IN THE ARTICLE ARE V. KH. DYMOV; 65, NAVY; B. P. NIKONOV, V. A. ZADOROZHNY, V. I. UL, YANOV, AND A. V. ZHITKOV, PARATROOPS. ON APRIL 7, 1970, THE ACADEMY WAS AWARDED A JUBILEE MERITORIOUS CERTIFICATE FOR ITS ACHIEVEMENTS GAINED IN HONOR OF THE 100TH ANNIVERSARY OF LENIN.

UNCLASSIFIED



MLOR

UDC: 654.9-525

KOZBERODOV, V. A., IVANOV, N. A., RAZUMENKO, V. M., ZANIN, V. G., Ust'-  
-Kamenogorsk Instrument Plant

"A Pneumatic Analyzer of Limiting Deviations"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraboty, Tovarnyye Znaki,  
No 31, 1970, Soviet Patent No 283682, Class 42, filed 30 May 69, p 137

Abstract: This Author's Certificate introduces a pneumatic analyzer of limiting deviations. The device contains AND logic elements which act as data units for the deviational standards; deviation signal devices; and a group analog-code converter which includes a series circuit made up of a pulse oscillator, pulse counter, code-analog converter, and comparison elements equal in number to the variables being converted. As a distinguishing feature of the patent, the device is simplified and precision is improved by connecting two AND elements by their inputs to the outputs of the pulse counter in the group analog-code converter, the outputs of these AND elements being connected to the upper and lower deviation signal devices, the first output being connected through an inhibit element and a flip-flop with separate inputs, and the second through a third AND element and another flip-flop with separate inputs. The output of the comparison element in the group analog-code converter is connected to the inputs of the inhibit element and the third AND element.

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